

OPTO-ACOUSTIC WAVE CHEMICAL SENSOR

ABSTRACT OF THE DISCLOSURE

[0048] An opto-acoustic wave sensor provides for the detection, the determination of the location, and/or the quantification of an amount of a chemical species using a selective chemical interaction of the chemical species and a selective reagent disposed on a surface of the opto-acoustic wave sensing element. The amount of the chemical species is detected by a change in the mass of the opto-acoustic wave-sensing element, which results in a detectable change in a resonance frequency of the sensing element. The identity of the chemical species is ascertained by an optical property of the product of the selective chemical interaction such as an absorbance or an intensity or other properties of the electromagnetic radiation emitted by the product. The sensor may be used in a method for detecting, determining the location or the spatial distribution of, and quantifying a wide range of chemical compounds, such as for monitoring chemicals in environment and industrial facilities and determining products in a combinatorial experiment.